(7) The power or thrust on the operating engine(s) rapidly changed, immediately after the second critical engine is made inoperative, from the power or thrust prescribed in paragraph (g)(6) of this section to—

(i) Minimum power or thrust; and

(ii) Go-around power or thrust setting.

(h) In demonstrations of $V_{MCL}$ and $V_{MCL-2}$—

(1) The rudder force may not exceed 150 pounds;

(2) The airplane may not exhibit hazardous flight characteristics or require exceptional piloting skill, alertness, or strength;

(3) Lateral control must be sufficient to roll the airplane, from an initial condition of steady flight, through an angle of 20 degrees in the direction necessary to initiate a turn away from the inoperative engine(s), in not more than 5 seconds; and

(4) For propeller airplanes, hazardous flight characteristics must not be exhibited due to any propeller position achieved when the engine fails or during any likely subsequent movements of the engine or propeller controls.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25–42, 43 FR 2321, Jan. 16, 1978; Amdt. 25–72, 55 FR 29774, July 20, 1990; 55 FR 37607, Sept. 12, 1990; Amdt. 25–84, 60 FR 30749, June 9, 1995]

## TRIM

### § 25.161 Trim.

(a) *General.* Each airplane must meet the trim requirements of this section after being trimmed, and without further pressure upon, or movement of, either the primary controls or their corresponding trim controls by the pilot or the automatic pilot.

(b) *Lateral and directional trim.* The airplane must maintain lateral and directional trim with the most adverse lateral displacement of the center of gravity within the relevant operating limitations, during normally expected conditions of operation (including operation at any speed from 1.4 $V_{S1}$ to $V_{MO}/M_{MO}$).

(c) *Longitudinal trim.* The airplane must maintain longitudinal trim during—

(1) A climb with maximum continuous power at a speed not more than 1.4 $V_{S1}$, with the landing gear retracted, and the flaps (i) retracted and (ii) in the takeoff position;

(2) A glide with power off at a speed not more than 1.4 $V_{S1}$, with the landing gear extended, the wing flaps (i) retracted and (ii) extended, the most unfavorable center of gravity position approved for landing with the maximum landing weight, and with the most unfavorable center of gravity position approved for landing regardless of weight; and

(3) Level flight at any speed from 1.4 $V_{S1}$, to $V_{MO}/M_{MO}$, with the landing gear and flaps retracted, and from 1.4 $V_{S1}$ to $V_{LE}$ with the landing gear extended.

(d) *Longitudinal, directional, and lateral trim.* The airplane must maintain longitudinal, directional, and lateral trim (and for the lateral trim, the angle of bank may not exceed five degrees) at 1.4 $V_{S1}$ during climbing flight with—

(1) The critical engine inoperative;

(2) The remaining engines at maximum continuous power; and

(3) The landing gear and flaps retracted.

(e) *Airplanes with four or more engines.* Each airplane with four or more engines must maintain trim in rectilinear flight—

(1) At the climb speed, configuration, and power required by § 25.123(a) for the purpose of establishing the rate of climb;

(2) With the most unfavorable center of gravity position; and

(3) At the weight at which the two-engine-inoperative climb is equal to at least 0.013 $V_{S02}$ at an altitude of 5,000 feet.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25–23, 35 FR 5671, Apr. 8, 1970; Amdt. 25–38, 41 FR 55466, Dec. 20, 1976]

## STABILITY

### § 25.171 General.

The airplane must be longitudinally, directionally, and laterally stable in accordance with the provisions of §§ 25.173 through 25.177. In addition, suitable stability and control feel (static stability) is required in any condition normally encountered in service,